Shiv Bhagat

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Education

University of Manitoba | Bachelor of Computer Science (Honours) *February 2026*
Achievements: Dean's Honour List (Fall '21, Winter '22, Fall '22), International Undergraduate Student Scholarship '22
Involvement: .devClub, Computer Science Students Association, UM Student Union

Professional Experience

Junior Application Developer | Government of Manitoba *05/2025 – 02/2026*
Winnipeg, MB

- Developed a **microservices** based automated inspection system for the Environmental Management Systems project using **C#, ASP.NET, Azure Functions**, JavaScript, and SharePoint.
- Collaborated with cross functional **Agile** teams to gather complex requirements and translate them into scalable solutions for over 1,200 internal service users.
- Designed and integrated **12+ robust REST APIs** and microservices using C# and Azure Functions, utilizing **API testing** tools (**Postman**) to validate data routing and performance.
- Developed responsive web components using **React** and **JavaScript** to improve internal data accessibility.
- Contributed to the enhancement of **AI-driven experiences** by leveraging **Microsoft Copilot** to automate unit test generation and improve the quality of backend services.
- Automated **CI/CD pipelines** and utilized **Azure DevOps** for comprehensive **test management and defect tracking**, ensuring high-quality software delivery while reducing deployment times from 45 minutes to 3 minutes.
- Provided functional support and **end user training** to the **business stakeholder**, resolving operational inquiries regarding **newly developed automation and processes** and optimizing document processing workflows for staff.
- Developed complex logic for automated data collection, validation, and **dynamic PDF report generation**, replacing manual entry.
- Collaborated in **requirements gathering workshops** with business stakeholders to translate complex administrative needs into technical **BPMN** workflows and functional specifications.
- Partnered with Business Analysts to identify system **optimization opportunities**, acting as the primary developer for cross departmental automation initiatives.
- Documented **complex workflows**, technical specifications, and system components to ensure the maintainability and transparency of deployed digital solutions.
- Recorded detailed **data flow mappings** and API specifications for the Environmental Management Systems automation project, contributing to the departmental **integration inventory** and ensuring data parity between **SharePoint**, **Azure Functions**, and legacy government databases like **MS Access** and **Oracle DB**.

Junior Programmer Analyst | University of Manitoba *05/2023 – 01/2026*
Winnipeg, MB

- Designed a testable and modular **backend** for the Transfer Credit Resource Migration system, improving code reusability through the application of **Object-Oriented Design (OOD) principles** and Interface based programming to decouple data processing logic within **Java** and **Spring Boot**.
- Leveraged **test automation frameworks** like JUnit and Mockito to enforce **test-driven development (TDD)** principles and ensure system reliability.
- Automated the **Evaluation Course Outline request process** using **JavaScript** and Power Automate, replacing manual tracking and improving document turnaround times.
- Developed a **Letter of Permission (LOP) faculty request generator** using JavaScript, Power Automate and SharePoint to dynamically create PDFs and automate distribution to faculty departments based on **SharePoint List**.
- Performed **root cause analysis** to diagnose a critical record visibility defect in the **FAA Awards Letter Portal** and fix it, collaborating with senior functional analysts to implement a permanent fix that improved administrative throughput.
- Engineered a custom **RPA (Robotic Process Automation) engine** using **1500+ lines of SQL query** and Slate-Technolutions for U1, direct entry, and entrance scholarship eligibility checks, reducing manual processing time by **80%** and eliminating $20,000 in annual institutional costs.
- Partnered with the Engineering Cluster and senior functional analysts to identify system enhancements which streamlined document processing and providing **end-user support** to improve administrative throughput.
- Provided **IT support** and **root cause analysis** for the Slate platform, resolving complex record visibility defects and merging duplicate student records to maintain data integrity.

Technical Projects

Akinrak - AI Trip Planning Buddy | *React Native, Clerk, TypeScript, C#* *02/2026 - present*

- Developed a **secure user authentication** and session management system using **Clerk**, achieving seamless native platform onboarding that protects user data across iOS and Android environments.
- Built a responsive Final Itinerary UI using **React Native** and **TypeScript**, successfully rendering complex and multi-day travel data to deliver an intuitive and **mobile first user experience**.
- Architecting an **AI-driven MVP** using large language model APIs to automate **custom travel planning**, aiming to generate fully structured itineraries in few hours.
- Designing an asynchronous, **queue-based** background processing architecture in C# which will be used to handle trip generation and data validation, ensuring highly reliable AI outputs with **zero main-thread UI blocking**.

Studly | *Tech Lead - React, Node.js, Express.js, Supabase, PostgreSQL, Docker, Github Actions* *09/2025 - 12/2025*

- Led a 5 member team to develop Studly, a gamified study web app built with **ReactJS, TypeScript, Node.js**, and **Socket.io**, leveraging **Supabase (PostgreSQL)** and **CI/CD** deployment using **Vercel, Railway**, and **GitHub Actions**.
- Packaged application components into **Docker** containers, reducing deployment friction and maintaining environment consistency.

RedRadar | *Python, Github Actions, Discord Webhooks* *09/2025 - 10/2025*

- Developed a **Python bot** tracking NASDAQ-100 and S&P 500 tickers and posting threshold based drop alerts to **Discord** in real time.
- Automated twice, daily execution with **GitHub Actions** and **Discord Webhooks**, managing secrets and environment variables securely in CI/CD workflows.

Linux Command Line Shell | C, Unix shell *01/2025 - 04/2025*

- Developed a custom **Unix shell** in **C** to handle command execution, process management, and I/O redirection.
- Implemented built in commands and environment variable handling using system calls like **fork, exec, and wait**.
- Managed memory allocation and signal handling to ensure shell stability and prevent process leaks.
- Optimized command parsing logic to support piped commands and background execution.

Smile | *Tech Lead - Java, XML, HSQLDB, Android Studio* *01/2025 - 04/2025*

- Led a 5 member team to build a full stack **Android** marketplace app using **Java**, **XML**, and **HSQLDB**, boosting user satisfaction scores by **60%.**
- Implemented **JUnit**, **Espresso**, and **Mockito** tests reaching **95% code coverage**, presented to approximately 110+ attendees, rated **4.3/5**.

Custom User-Level Threading Library & Scheduler | *C, scheduler* *01/2025 - 04/2025*

- Developed a user-level threading library in **C**, utilizing `ucontext` for **low-level stack management** and context switching, while implementing thread-safe synchronization primitives (**spinlocks**) using atomic hardware instructions.
- Engineered a **custom process scheduler** supporting **FIFO**, **Round-Robin**, and **Multi-Level Feedback Queue (MLFQ)** algorithms, featuring dynamic priority boosting and real-time execution tracking to optimize CPU utilization.

Distributed Blockchain Peer & Miner | *Python, Event Driven Object-Oriented Development* *11/2024 - 12/2024*

- Developed a Python based **distributed** blockchain peer-to-peer system capable of synchronization, consensus, and state management, utilizing event driven object-oriented programming for efficient network communication and protocol handling.
- **Engineered a high performance Python miner** utilizing multi threading to parallelize SHA-256 hashing, significantly increasing throughput for Proof-of-Work (PoW) computation.
- Implemented secure node discovery and data transmission by applying a **practical understanding of network protocols (TCP, UDP, HTTP/REST)** across the decentralized architecture.

Technical Skills

Languages: Java, C#, C++, C, JavaScript, Python, SQL, TypeScript
Systems & Architecture: Microservices (Azure Functions), Distributed Systems, Event-Driven Development.
Frontend: React, TypeScript, Bootstrap, Tailwind, Mantine, HTML/CSS, React Native
Backend: Node.js, Express.js, Flask, Spring Boot, RESTful APIs
Tools & DevOps: Git, Docker, PostgreSQL, MSSQL, Azure, CI/CD Automation, MS Office 365, Github Actions, Expo
Environments: Unix/Linux, Windows, macOS
Digital Solutions: Microsoft Power Platform (Power Apps, Power Automate, Power Pages, Dynamics 365), Microsoft 365 Copilot, SharePoint.